
Neighbor Detection Configuration Commands

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Chapter 1 Neighbor Detection Configuration Commands

Neighbor Detection Configuration Commands include:

- debug ipv6 nd
- show ipv6 neighbors
- clear ipv6 neighbors
- ipv6 neighbor
- ipv6 nd dad attempts
- ipv6 nd managed-flag
- ipv6 nd ns-interval
- ipv6 nd other-flag
- ipv6 nd prefix
- ipv6 nd ra-interval-range
- ipv6 nd ra-interval
- ipv6 nd ra-lifetime
- ipv6 nd reachable-time
- ipv6 nd router-preference
- ipv6 nd suppress-ra

1.1.1 debug ipv6 nd

Syntax

To enable the switch of printing ND debugging information, run the following command:

debug ipv6 nd [*entry* | *timer* | *X:X:X:X::X*]

no debug ipv6 nd [*entry* | *timer* | *X:X:X:X::X*]

Parameters

Parameters	Description
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<i>entry</i>	Stands for the switch of neighbor cache entry changes.
<i>timer</i>	Stands for the switch of neighbor cache timer changes.
<i>X:X:X:X::X</i>	Stands for the IPv6 address of neighbor cache.

Default Value

Disabled

Command Mode

EXEC

Usage Guidelines

If the command carries with no extension parameters, all debugging OLTs are enabled.

Example

To enable ND timer debug information output switch, run the following command:

```
Switch# debug ipv6 nd timer
```

Related Command

None

1.1.2 show ipv6 neighbors

Syntax

To display the current switch's neighbor cache, run the following command:

```
show ipv6 neighbors [ vlan vlanid ]
```

Parameters

Parameters	Description
<i>vlanid</i>	vlan号。

Default Value

None

Command Mode

Other modes except the user mode

Usage Guidelines

None

Example

The following example shows the neighbor caching of vlan 1 on the current OLT:

```
Switch# show ipv6 neighbors vlan 1
```

IPv6 Address	Age(sec)	Link-layer Addr	State	Interface
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Related Command

None

1.1.3 clear ipv6 neighbors

Syntax

To cancel all neighbor caches that are not configured manually, run the following command:

clear ipv6 neighbors

Parameters

None

Default Value

None

Command Mode

EXEC

Usage Guidelines

This command can only cancel all those neighbor caches automatically obtained by an OLT itself, not those manually configured by the ipv6 neighbor command.

Example

The following example shows how to clear all non-manually configured neighbor caching of the OLT:

```
Switch# clear ipv6 neighbors
```

Related Command

ipv6 neighbor

1.1.4 ipv6 neighbor

Syntax

To set neighbor caches of an OLT in the global configuration mode, run the following command globally:

ipv6 neighbor *address6* **vlan** *vlanid* *mac*

To return to the default setting, use the no form of this command.

no ipv6 neighbor *address6* **vlan** *vlanid*

Parameters

Parameters	Description
<i>address6</i>	Means the IPv6 address of the neighbor.
<i>vlanid</i>	Stands for the ID of the VLAN port.
<i>mac</i>	Means the link-layer address of a neighbor.

Default Value

None

Command Mode

Global configuration mode

Usage Guidelines

You can use this command to set neighbor caches of an OLT. These neighbor caches never times out and are always reachable until no ipv6 neighbor is run.

Example

The following example shows how to set on port interface vlan1 a neighbor whose IPv6 address is 1::1 and whose link-layer address is 00:e0:4c:5a:78:eb.

```
Switch_config# ipv6 neighbor 1::1 vlan 1 00:e0:4c:5a:78:e
```

Related Command

```
show ipv6 neighbors
```

1.1.5 ipv6 nd dad attempts

Syntax

To set the number of transmitted NSs when ND performs DAD on a port, run the following command:

```
ipv6 nd dad attempts num
```

To return to the default setting, use the no form of this command.

```
no ipv6 nd dad attempts
```

Parameters

Parameters	Description
<i>num</i>	Stands for the number of NSs transmitted during DAD.

Default Value

1

Command Mode

Vlan Interface configuration mode

Usage Guidelines

You can use the “no” form of this command to resume the default value.

Example

The following example shows how to set the number of NS sent by ND working as DAD to 100:

```
Switch_config# inter vlan 1
```

```
Switch_config_v1# ipv6 enable
```

```
Switch_config_v1# ipv6 nd dad attempts 100
```

Related Command

None

1.1.6 ipv6 nd managed-flag

Syntax

To set the M flag in the RA message transmitted by the local port, run the following command.

ipv6 nd managed-flag

[no] ipv6 nd managed-flag

Parameters

Parameters	Description
None	

Default Value

The M flag is 0 by default.

Command Mode

Interface configuration mode

Usage Guidelines

This command can be used to set to 1 the M flag in the RA message transmitted by the local port, and its “no” form can be used to cancel this settings and resume its value to 0.

Example

The following example shows how to set the M flag in the RA message transmitted by the local port:


```
Switch_config_v1# ipv6 enable
```

```
Switch_config_v1#ipv6 nd managed-flag
```

Related Command

None

1.1.7 ipv6 nd ns-interval

Syntax

To set the NS transmission interval of the local port and configure the retrans-timer field in the RA message, run the following command:

```
ipv6 nd ns-interval milliseconds
```

```
no ipv6 nd ns-interval
```

Parameters

Parameters	Description
<i>milliseconds</i>	Stands for the NS transmission interval, whose unit is millisecond. The value ranges from 1 to 4294967295.

Default Value

The default interval of transmitting NS is 1000 ms, that is, 1 second. The retrans-timer field in the RA message is 0 by default, which means uncertainty.

Command Mode

VLAN interface configuration mode

Usage Guidelines

This command can be used to set the NS transmission interval of the local OLT on the local port and at the same time the retrans-timer field in the RA message on the local port.

You can use the “no” form of this command to resume the default value.

Example

The following example shows how to set the NS transmission interval of the local port to 1000ms:

```
Switch_config# inter vlan 1  
Switch_config_v1# ipv6 enable  
Switch_config_v1# ipv6 nd ns-interval 1000
```

Related Command

None

1.1.8 ipv6 nd other-flag

Syntax

To set the O flag in the RA message transmitted by the local port, run the following command.

[no] ipv6 nd other-flag

Parameters

None

Default Value

The O flag in the transmitted RA message is 0 by default.

Command Mode

VLAN interface configuration mode

Usage Guidelines

This command can be used to set the O flag in the RA message, which is transmitted by the local port, to 1, and its “no” form can be used to cancel this settings and resume the default settings.

Example

The following example shows how to set the O flag in the RA message transmitted by the local port:

```
Switch_config# inter vlan 1  
Switch_config_v1# ipv6 enable  
Switch_config_v1# ipv6 nd other-flag
```

Related Command

None

1.1.9 ipv6 nd prefix

Syntax

To set the prefix of the RA message, run the first one of the following two commands:

```
ipv6 nd prefix {ipv6-prefix/prefix-length | default} [no-advertise | [valid-lifetime
preferred-lifetime [off-link | no-autoconfig]*] | infinite ]
no ipv6 nd prefix {ipv6-prefix/prefix-length | default}
```

Parameters

Parameters	Description
<i>Ipv6-prefix</i>	Stands for the prefix of IPv6.
<i>Prefix-length</i>	Stands for the length of the prefix.
<i>Valid-lifetime</i>	Stands for the valid time.
<i>Preferred-lifetime</i>	Stands for the most privileged time.

Default Value

The default advertise, on-link, autoconfig, or valid-lifetime is 2592000 seconds and the default preferred-lifetime is 604800 seconds.

Command Mode

VLAN interface configuration mode

Usage Guidelines

no-advertise means that the prefix is not contained in the RA message.

off-link means that the ON-Link flag in the prefix of the RA message is 0, and no-autoconfig means that the AUTO-CONFIG in the prefix of the RA message is 0.

You can set the prefix on a port by using `ipv6 nd prefix ipv6-prefix/prefix-length...` and cancel this prefix by using the “no” form of this command.

You can set the default value of the prefix by using `ipv6 nd prefix default ...` and cancel this settings by running the “no” form of this command.

Example

```
Switch_config# inter vlan 1
```

```
Switch_config_v1# ipv6 enable
```

1. Switch_config_v1# ipv6 nd prefix 1::/64

The prefix “1::/64” is added on a port and the other fields will be attributed with default values. The following RA messages will all be added with this prefix.

```
Switch_config# inter vlan 1
```

```
Switch_config_v1# ipv6 enable
```

2. Switch_config_v1# ipv6 nd prefix 2::/64 off-link

The prefix “2::/64” is added, the ON-LINK flag is 0, and other protocols are their default values.

```
Switch_config# inter vlan 1
```

```
Switch_config_v1# ipv6 enable
```

3. Switch_config_v1# ipv6 nd prefix default no-autoconfig

The default value on this port is changed to NO-AUTOCONFIG, and other protocols are their default values. If the three commands are used successively, the third command will not influence the prefix “2::/64” configured by the second command but the prefix “1::/64” configured by the first command will change to NO-AUTOCONFIG.

Related Command

None

1.1.10 ipv6 nd ra-interval-range

Syntax

To set the maximum or minimum interval of RA transmission, run the following command:

```
ipv6 nd ra-interval-range max [min]
```

```
no ipv6 nd ra-interval-range
```

Parameters

Parameters	Description
<i>max</i>	Sets the maximum interval of RA transmission, whose unit is second.
<i>Min</i>	Sets the minimum interval of RA transmission, whose unit is second.

Default Value

The default maximum interval is 600 seconds and the default minimum interval is only 1/3 of the default maximum interval.

Command Mode

VLAN interface configuration mode

Usage Guidelines

This command is always used to set the range of the RA transmission interval.

You can use the “no” form of this command to resume the default value.

Example

The following example shows how to set the maximum or minimum interval of RA transmission to 100:

```
Switch_config# inter vlan 1
```

```
Switch_config_v1# ipv6 enable
```

```
Switch_config_v1# ipv6 nd ra-interval-range 100
```

Related Command

`ipv6 nd ra-interval`

`ipv6 nd ra-lifetime`

1.1.11 `ipv6 nd ra-interval`

Syntax

To set the interval of RA transmission on the local port, run the following command:

`ipv6 nd ra-interval` *seconds*

Parameters

Parameters	Description
<i>seconds</i>	Sets the interval of RA transmission, whose unit is second.

Default Value

The interval for the local port to transmit the first three messages cannot be more than 16 seconds, while that to transmit the following messages varies between the maximum interval (600 seconds) and the minimum interval (200 seconds).

Command Mode

VLAN interface configuration mode

Usage Guidelines

This command is always used to set the range of the RA transmission interval for the local port. As to the first three RA messages transmitted by the local port, if their transmission interval is less than 16 seconds, the time will be used as the transmission interval. Otherwise, the transmission interval for the first three messages is 16 seconds. The following RA messages' transmission interval is the just configured time.

You can use the “no” form of this command to resume the default value.

Example

The following example shows how to set the interval of RA transmission on the local port to 300:

```
Switch_config# inter vlan 1
Switch_config_v1# ipv6 enable
Switch_config_v1# ipv6 nd ra-interval 300
```

Related Command

ipv6 nd ra-interval-range

1.1.12 ipv6 nd ra-lifetime

Syntax

To set the router-lifetime field in the RA message transmitted by the local port, run the following command.

ipv6 nd ra-lifetime *seconds*

no ipv6 nd ra-lifetime

Parameters

Parameters	Description
<i>seconds</i>	Stands for the value in the router-lifetime field in the RA message, whose unit is second. The value ranges from 0 to 9000.

Default Value

MaxRtrAdvInterval*3 is 1800 seconds or triple of the maximum RA transmission interval configured by `ipv6 nd ra interval max`

Command Mode

VLAN interface configuration mode

Usage Guidelines

You can use the “no” form of this command to resume the default value.

Example

The following example shows how to set the router-lifetime field in the RA message transmitted by the local port to 1000:

```
Switch_config# inter vlan 1
```

```
Switch_config_v1# ipv6 enable
```

```
Switch_config_v1# ipv6 nd dad attempts 1000
```

Related Command

```
ipv6 nd ra-interval-range
```

1.1.13 ipv6 nd reachable-time

Syntax

To set the reachable-time field of the RA message and the reachable time of all automatically configured neighbor caches on the local port, run the following command:

```
ipv6 nd reachable-time milliseconds
```

```
no ipv6 nd reachable-time
```

Parameters

Parameters	Description
<i>milliseconds</i>	Stands for the time, whose unit is second. The value ranges from 1 to 3600000

Default Value

The reachable-time is 0 by default and the default reachable time for the neighbor cache is a value between 15 seconds and 45 seconds.

Command Mode

VLAN interface configuration mode

Usage Guidelines

You can use the “no” form of this command to resume the default value.

Example

To set the reachable-time field of the RA message and the reachable time of all automatically configured neighbor caches on the local port to 1000ms:

```
Switch_config# inter vlan 1
```

```
Switch_config_v1# ipv6 enable
```

```
Switch_config_v1# ipv6 nd reachable-time 1000
```

Related Command

None

1.1.14 ipv6 nd router-preference

Syntax

To set the value of the switch preference in the RA message, run the following command:

ipv6 nd router-preferenc *preference*

To return to the default setting, use the no form of this command.

no ipv6 nd router-preference

Parameters

Parameters	Description
<i>Preference</i>	Stands for the preference of an OLT, which can be one of the three values: high, medium and low.

Default Value

medium.

Command Mode

VLAN interface configuration mode

Usage Guidelines

You can use the “no” form of this command to resume the default value.

Example

The following example shows how to set the value of the OLT preference in the RA message to high:

```
Switch_config# inter vlan 1
```

```
Switch_config_v1# ipv6 enable
```

```
Switch_config_v1#ipv6 nd router-preference high
```

Related Command

None

1.1.15 ipv6 nd suppress-ra

Syntax

To disable a port to be the notification port of an OLT, run the following command:

ipv6 nd suppress-ra

[no] ipv6 nd suppress-ra

Parameters

None

Default Value

The port works as the notification port of the OLT.

Command Mode

VLAN interface configuration mode

Usage Guidelines

You can use the “no” form of this command to resume the default value.

Example

The following example shows how to disable a port to be the notification port of an OLT:

```
Switch_config# inter vlan 1
```

```
Switch_config_v1# ipv6 enable
```

```
Switch_config_v1# ipv6 nd suppress-ra
```

Related Command

None